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## 5.3 Evaluation of personnel, plans, and procedures, including protection against insiders

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### **5.3 Evaluation of personnel, plans, and procedures, including protection against insiders**

A physical protection system integrates the PPS components of people, plans, procedures, and equipment for the protection of assets or facilities from unauthorized removal of nuclear material and/or sabotage. Validation of the system effectiveness of the physical protection system requires that all PPS components of personnel, plans, procedures, and equipment be performance tested, analyzed, and inspected to ensure that the system effectiveness is maintained at the State defined level which provides an acceptable level of protection for all targets against all threats.

Determining which PSS to test is usually based on information uncovered during document reviews, interviews, and data collection activities. If this information leads evaluators to think that a weakness may exist along a particular adversary path, or if the maintenance history of a system indicates a potential weakness, the systems identified with these weaknesses should be tested.

Evaluation of the PPS component effectiveness should be performed in all phases of the PPS from design to operational turnover to daily functional testing. As a component is incorporated into the PPS the system effectiveness it should be tested from inception throughout its lifecycle. There are a number of performance-based methods available such as Path Analysis, Simulation, and Exercises. Exercises range from Force-on-Force exercises which test the complete PPS, training and readiness of a response force to Limited Scope exercises which test components of the PPS. All physical protection measures including technical, procedural, and administrative provisions should be tested, reviewed, and evaluated. Limited Scope exercises can be used to evaluate the use of security measures such as technologies, plans, procedures, training and qualification of operational personnel, security specialists and guards.

When evaluating key components of the PPS, insider attributes should be considered. The insider can utilize their access authorization, authority and knowledge to bypass dedicated physical protection components or other provisions such as procedures. Insiders can select the most vulnerable target and the most opportune time to perform the theft or sabotage. The insider may also employ protracted theft where the insider extracts small amounts of nuclear material for several days or weeks until the insider has amassed a goal quantity of nuclear material.

To aid in defending against the insider threat the physical protection system is assisted by nuclear material accounting and control measures, process controls, safety alarms, operational alarms, and observations by co-workers or supervisors. When evaluating the effectiveness of the PPS all of these components should be tested as well.

The overall approach consists of implementing several layers of defence, including both administrative aspects (procedures, instructions, administrative sanctions, access control rules, confidentiality rules) and technical aspects (multiple protection layers fitted with detection and delay) that insiders would have to overcome or circumvent in order to achieve their objectives. (NSS08, 5.2)

## **Personnel**

There are a variety of methods to evaluate the performance of personnel who perform PP activities. During any evaluation process it is best to use multiple techniques to determine personnel assigned to PP activities are successfully performing their assigned PP function. Evaluation methods include direct observation, interviews, job knowledge testing, and limited scope performance testing and full exercises.

The evaluation of PPS preventive measures to defeat the insider may include, review the operator programs for personnel identity verification, trustworthiness checks for all who have access to the facility and to information concerning it; escorts and surveillance of infrequent workers and visitors, and security awareness training for all workers. The evaluator should also review the operator employee satisfaction program to ensure it fosters good relations between workers and management and that workers are given due consideration and should be part of the security culture.

## **Plans**

Any evaluation of the PPS should begin with a review and evaluation of operator nuclear security plans. Documents to be reviewed include:

- Operator nuclear security management structure/charts
- Operator nuclear security plans and procedures
- Operator transportation plans and procedures
- Listing of waivers and exceptions
- Past survey reports and inspection reports
- Facility asset list
- Maps/drawings showing security areas, buildings, Protective Force posts, vital equipment areas, and NM storage areas. PPS plans may include compartmentalizing the facility using a comprehensive network of access control; and safety provisions

Given that the information contained within it would be of great value to an adversary, steps should be taken to ensure the confidentiality of the physical protection plan. Access to the detail in the plan should be limited to those with a definite need to know to ensure confidentiality (security of information)

## **Procedures**

Records and procedures should also be evaluated for completeness and accuracy. Records include:

- Operations logs and test records;
- PSS maintenance, testing, and repair records;
- Trend analysis information;
- Occurrence reports;
- Force-on-force after-action reports
- Protective force post orders,
- PPS maintenance procedures,

- MC&A procedures, and
- Facility operating procedures.;

Typical evaluations verify whether:

- PSSs are accurately characterized in VAs and security plans.
- Response times are consistent with those identified in security plans.
- Equipment is tested and calibrated according to traceable specifications.
- Procedures are complete and describe the actual methods of operation.
- Personnel adhere to procedures in performing their activities.
- Personnel are knowledgeable of their duties and responsibilities.
- Equipment is in good repair.